



## ***Technology Demonstration Summary Sheet***

### ***Pegasus Coating Removal System Decontamination***

---

#### **THE NEED**

The decontamination of radioactively contaminated concrete is a concern during the decontamination and decommissioning (D&D) process. The primary decontamination objectives are: (1) a reduction in the surface contamination levels to reduce potential personnel and environmental exposure, and (2) the reduction of surface contamination levels to meet DOE Order 5400.5 for unrestricted use.

#### **THE TECHNOLOGY**

The Pegasus Coating Removal System (PCRS) is a chemical-based coating removal system developed by Pegasus International, Inc. Four types of PCRSs are available for application to alkyds, latex paints, epoxies, urethanes, chlorinated rubbers, elastomers, mastics, and other chemical-resistant coatings. PCRS can be applied using long- and short-handled spreaders, trowels, rollers or a spray applicator. The material is left on the surface for a predetermined period of time (normally 3 to 72 hours) and allowed to interact with the coating. After the specified dwell time, the PCRS and floor coating are then removed using scrapers and/or large plastic shovels.



**Test Patch using PCRS-1**

#### **THE DEMONSTRATION**

This demonstration tested the Pegasus International, Inc.'s Pegasus Coating Removal System technology for its ability to decontaminate approximately 500 square feet of concrete flooring by removing the coating layer. The testing was performed on the service floor of the Argonne National Laboratory East (ANL), Chicago Pile 5 (CP-5) Research Reactor as part of the Large Scale Demonstration Project funded by DOE's Federal Energy Technology Center.

#### **THE RESULTS**

The vendor applied the chemical, PCRS-1, to a 1-ft. by 1-ft. test patch on the floor of the demonstration area. After a four-hour dwell time, the PCRS-1 was removed from a corner of the test patch using a hand scraper. Along with the PCRS-1, the two top layers of paint were easily removed after the four hours, however, the floor primer was not removed. The remainder of the test patch remained in place for an additional 48 hours before removing. After this time, the floor primer still could not be removed. A second test patch was applied, this time covering the patch with a wax paper to prevent drying of the PCRS. After 24 hours, the second test patch was removed with the same results. The demonstration was ended at this point.

When applied, the PCRS-1 was a white pasty substance resembling a spackling compound. The chemical was applied using a hand-held scraper and spread evenly over the test patch. After the four-hour dwell time, the PCRS-1 had dried around the edges of the test patch. However, after the 48-hour dwell time, the entire test patch had dried and had to be scraped off the floor. The paint that was removed with the PCRS had re-dried on the floor and was removed with damp rags.

The PCRS-1 is composed of 46 percent sodium, magnesium, and calcium hydroxides and has a pH of 13. The waste removed from the test patches as well as the residue which is left on the floor after the PCRS-1 was removed were also measured to be pH 13. The vendor typically removes this residue with a high-pressure water wash. For this demonstration, however, a granular citric acid was applied to the test patches to neutralize the residue.

#### **CONTACTS**

- Dick Baker, Project Manager, U.S. Department of Energy, Chicago Operations Office, (630) 252-2647.
- Steve Bossart, D&D Focus Area Manager, Federal Energy Technology Center, (304) 285-4643.
- Terry Bradley, Alliance Administrator, Duke Engineering & Services, (704) 382-2766.
- Sue Madaris, D&D Project Manager, Hemispheric Center for Environmental Technology at Florida International University, (305) 348-3727.
- Tom Bodkin, Sales Manager, Pegasus International, Inc., (412) 295-0066.